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2 **BEFORE THE STATE OF WASHINGTON**
3 **ENERGY FACILITY SITE EVALUATION COUNCIL**

4 In the matter of
5 Application No. 2002-01

6 BP WEST COAST PRODUCTS, LLC

7 BP CHERRY POINT
8 COGENERATION PROJECT

EXHIBIT 42.0 (KS-T)

9
10 **WHATCOM COUNTY'S PREFILED TESTIMONY**
11 **WITNESS # 42 : Dr. Kate Stenberg**

12
13 Q: Please introduce yourself to the Council.

14 A: I am Dr. Kate Stenberg. I hold a Ph.D. in Urban Wildlife Science and Regional
15 Planning from the University of Arizona. My resume is attached hereto as Exhibit # 42.1. I
16 have been involved with monitoring herons in Puget Sound, primarily in King County, for over
17 a decade and have been a member of the International Heron Working Group since its
inception in 2000. I am a nationally recognized expert in the field of urban wildlife biology
and am currently the chair of the national Urban Wildlife Working Group of the Wildlife
Society. I have expertise in wetlands and land use planning as well.

18 Q: What is the subject of your testimony?

19 A: On behalf of Whatcom County, I reviewed those portions of the Application and Draft
20 Environmental Impact Statement (DEIS) prepared for the BP Cherry Point Cogeneration
21 Project prepared for the Energy Facility Site Evaluation Council (EFSEC). I also conducted a
22 visit to the BP Cherry Point facility and vicinity on October 12, 2003. My review raised a
23 number of concerns about the conclusions in the Application and the DEIS pertaining to
24 potential impacts of the proposed cogeneration facility. There are a number of respects the
25 Application and the DEIS do not supply adequate or accurate information which, in turn,
prevents an analysis of impacts to be conducted or explain why adverse impacts would not
occur.

1 Based on my analysis of the situation, likely adverse impacts include impacts to water
2 quality and quantity; to sensitive fish and wildlife including the significant heron colony,
3 threatened Puget Sound Chinook, and Essential Fish Habitat; critical wetland and riparian
4 habitats; and impacts from changes in noise, light and glare. It is possible that some of these
5 impacts will be adequately avoided, minimized or mitigated for in the project, however, neither
6 the Application nor the DEIS provides sufficient information to reach that conclusion. In
addition, the wetland mitigation plan, a key component of this project, has not been available
to the public for review. Public involvement is a key requirement for adequate environmental
review, and this oversight compromises EFSEC's ability to make a full review.

7 My testimony will focus on potential impacts to wildlife and habitats. I will not
8 address the adequacy of the wetland mitigation plan for functions other than wildlife habitat.

9 Q: A principal concern you have about the project is its potential to adversely impact Great
10 Blue Herons which nest and feed nearby. Please explain to the Council why the Herons should
be of concern to EFSEC in its siting decision.

11 A: The great blue heron colony at Cherry Point is the third largest colony in the Puget
12 Sound area of Washington. In 2002, the colony supported about 260 nests (Eissinger 2002).
13 The herons at Cherry Point are significant because they are members of a distinct subspecies of
14 great blue heron (*Ardea herodias fannini*). This coastal subspecies is found along the west
15 coast of British Columbia and Washington and perhaps into Oregon. The main populations are
16 found in the greater Puget Sound or Salish Sea area. Researchers throughout western
17 Washington and British Columbia have noticed a downward trend in the numbers of these
18 herons and are growing alarmed at the declines. Canadian scientists have already taken the
steps needed to list the coastal subspecies of the great blue heron as "sensitive" under the
Canadian version of an endangered species act and are currently collecting the data that would
be required to upgrade the species to "threatened." EFSEC and BPA should ensure that their
actions do not endanger the significant Cherry Point colony and lead to a listing of this species
in the U.S.

19 Great blue herons are colony nesters, which increases their vulnerability to
20 disturbances. As the Puget Sound region becomes increasingly developed, alternative nesting
21 sites suitable for large colonies of herons are increasingly rare. In addition, any disturbance
22 that disrupts the use of a heron colony, even for a few breeding seasons, can have significant
impacts on the population due to the large concentration of reproductive effort in one location.

23 Despite being the third largest heron colony in the Puget Sound region, the Cherry
24 Point heron colony has experienced severe declines in recent years. Prior to 1999, the colony
25 supported over 400 nests. It failed completely in 1999 and has only slowly recovered to its
current size of about 260 nests. Any significant reduction in the surrounding habitats that
support the colony could severely impact the colony.

1 Q: Are there any heron habitats that may be impacted by the cogeneration project?

2
3 A: There are several critical heron habitats located within the project area and vicinity.
4 The limiting habitats with which the Birch Bay great blue heron colony has a primary
5 association include: the nesting colony and it's associated buffer; "staging" areas in fallow
6 fields, riparian habitats and wetlands to the east of the colony; and critical foraging areas
7 within a four mile radius of the nesting colony which include, wetlands, wetland buffers,
8 fallow fields, riparian habitats, and protected marine shorelines.

9 The project will impact each of these critical areas in the following ways.
10 Development of the project will directly and permanently impact over 33 acres of wetland and
11 wetland buffer within this critical foraging area. The wetland mitigation plan will affect 110
12 acres of the critical habitat. In the long-term, the mitigation plan may improve the overall
13 quality of the foraging habitat, but it may adversely impact it in the short-term. The mitigation
14 plan would appear to result in a decrease in available habitat for at least two to five years and
15 this may be enough of a temporal loss to result in colony abandonment. The operation of the
16 proposed cogeneration facility and associated noise impacts may also affect the herons' ability
17 to utilize their critical foraging habitats. Finally, operation of the proposed facility may change
18 the wastewater discharge parameters, which may affect populations of forage fish, resulting in
19 impacts to the herons' ability to find sufficient food resources in critical marine environments.

20 Q: How do the heron use these habitats and what is importance of each?

21 A: Heron colonies are generally located in relatively undisturbed forest stands. Herons
22 seem to require a buffer between human activities and their nest trees to be successful. Within
23 the colony, multiple nests are located in each tree. Large colonies encompass many trees and
24 they may "move" from year to year around a core area as the colony contracts and expands.
25 Colonies are frequently found in stands of deciduous trees, in or adjacent to wetland and
26 riparian areas. The Cherry Point colony is located in a stand dominated by western paper birch
(*Betula papyrifera*). It is set back from the nearest street and is located adjacent to the riparian
27 habitats of Terrell Creek. The herons nest from about March through July.

28 The Cherry Point colony relies heavily on the marine resources found in the shallow
29 intertidal habitats of Birch Bay and likely also Drayton Harbor and Lummi Bay for food.
30 Herons will fly up to twelve miles from a nesting colony to forage. However, during the
31 nesting season, the breeding females rely on food sources closer to the colony to support
32 themselves and their brood. The most critical areas during the nesting season would be those
33 foraging areas within four miles of the nesting colony.

34 Juveniles take several weeks to learn how to forage for themselves after fledging. This
35 critical learning period also occurs close to the nesting colony. For the Cherry Point colony,
36 this critical foraging habitat includes the wetlands, fallow field and stream habitats of the

1 Terrell Creek watershed. Both breeding females and juveniles rely heavily on amphibians and
2 small mammals, as well as fish, for food. Colonies that lose these critical components of their
3 food resources do not survive.

4 In addition, studies have shown that the breeding females and juveniles during these
5 critical periods will forage in wetland buffers up to 150 feet from the edge of a wetland.
6 Again, they are foraging for amphibians and small mammals in these upland areas. Actions
7 that compromise the ability of these critical wetland, upland, riparian and marine environments
8 to provide adequate food resources could have significant adverse impacts to the nesting
9 colony. Similarly, activities that impair the herons' ability to forage in these locations would
10 also have significant impacts to the nesting colony.

11 A final component of colony success is an appropriate "staging" area. This is an area
12 near the nesting colony where herons congregate at the start of the breeding season. The
13 function of this behavior and the requirements of an adequate staging area are poorly
14 understood, however, all successful colonies observed include a place where this activity
15 occurs. At the Cherry Point colony, the wetlands and fallow fields north of Grandview Road
16 and between Jackson and Blaine Roads provide this critical function for the colony.

17 Given the significance of the Cherry Point heron colony and its associated critical
18 habitats within the project area, greater treatment of the issue should have been undertaken in
19 the application materials. The cavalier treatment in the application and DEIS is surprising and
20 unjustified.

21 Q: Based on your review of the project proposal, what generalized impacts to area wildlife
22 do you believe the proposal presents?

23 A: I believe the proposal presents a variety of potential adverse impacts which the
24 application and the DEIS have not adequately or fully addressed. These impacts generated by
25 the facility would include those to be expected from noise, light and glare, wastewater
discharge, stormwater management, and habitat loss and alterations.

Q: With regard to potential impacts stemming from increases in noise, please explain to
the Council your concerns.

A: Noise impacts that need to be analyzed fall into two main categories, impacts to
breeding wildlife and impacts to foraging wildlife. Due to the significance of the Cherry Point
heron colony, potential impacts to breeding great blue herons are of primary concern.
However, noise may affect the reproductive success of other species as well. Noise may
simply deter individuals from occupying available habitats, thereby reducing the overall
population of species and reducing the wildlife diversity of an affected area. Noise may also
mask intra- and inter-specific calls that may then reduce the reproductive success of
individuals. Noise may also mask warning sounds of approaching predators, thereby making

1 individuals and their broods more vulnerable to predation. Noise similarly affects foraging
2 individuals, reducing foraging success by interfering with the ability to detect prey and avoid
predators, and by reducing the total area available to forage in.

3 In order for a species to occur and survive in a particular location, individuals must be
4 able to meet all of their requirements for survival. This is the definition of “habitat.” If
5 individuals find that they are unable to find sufficient prey, avoid predators, or communicate
6 with other individuals of their species to find mates or maintain territories, then that location
can no longer be considered habitat for that species. When noise levels cause individuals to
avoid an area, then the habitat area for that species has been reduced.

7 Researchers agree that noise can affect an animal’s physiology and behavior, and if it
8 becomes a chronic stress, noise can be injurious to an animal’s energy budget, reproductive
9 success and long-term survival (e.g. Trimper, et al., 1998, Gese, et al., 1989, Reijnen, et al.,
10 1996). If reproductive success and long-term survival are affected, even if individuals are still
present in an area, the suitability of the habitat to support the species has been reduced. The
11 application materials do not address any of these potential impacts to wildlife nor do they
provide adequate information to evaluate these potential impacts.

12 Furthermore, the studies of Brattstrom and Bondello, 1983, remind us of the very
13 obvious point that human ears and the ears of many wildlife species, particularly herpetofauna
14 are structured very differently and thus react to the same sounds very differently. For example,
they found that while OSHA recommends that humans not be exposed to sounds of 95 dBA for
more than 4 hours, lizards experienced hearing loss after only 8 minutes.

15 In addition, studies with wildlife indicate that a change of even 1 dBA is perceptible to
16 animals and the ability to discern a sound 1 dBA over the ambient noise levels may mean the
17 difference between survival and becoming a predator’s lunch (Brattstrom and Bondello 1983.)
Regulatory standards for humans should not be applied to wildlife, without serious
18 consideration of the types of wildlife and habitats present and the type of noise being
evaluated. Wildlife should be evaluated as sensitive receptors.

19 The application materials and DEIS were very unclear about the nature of the noise that
20 would be generated by the proposed cogeneration plant. For example, it is not clear whether
21 the noise would be a constant continuous presence or whether the plant would cycle generators
on and off creating variability in the noise. Variable noise sources sometimes appear to have a
22 greater impact on wildlife than constant, even noise sources of the same magnitude over time.
If the noise would be variable then there is a greater likelihood of significant impacts to
23 wildlife use of both the compensatory mitigation areas (CMAs 1 and 2) and receptor sites
further away, such as the heron colony.

24 It is also important to evaluate wildlife sensitivity to noise disturbances that might be
25 related to time of day or season. Great blue herons, for example, appear to be very sensitive to

1 many disturbances during the “staging” and early nesting seasons. During these periods they
2 may react to disturbances that they appear to ignore later in the breeding season and in the
3 winter. Herons react to disturbances by flushing or flying up into the air. This extra activity
4 may disrupt an individual’s energy budget causing it to spend more time foraging and less time
5 focused on nesting activities. Flushing during the early nesting season also exposes eggs to
6 predation when adults fly off of nests in alarm. It is important to consider these seasonal
7 sensitivities regardless of whether the noise is variable or constant.

8 Foraging activities occur around the clock. Some species are diurnal and primarily
9 forage during daylight hours while others are nocturnal, foraging at night. Some species,
10 including great blue herons, forage both during the day and at night. Herons may have evolved
11 this behavior in response to their dependence on marine food resources and the fact that one of
12 the two low tides is likely to occur after nightfall. However, they also forage in wetlands and
13 other non-marine habitats at night. Changes in nighttime noise measures generated by the
14 proposed project may become critical limiting factors in the suitability of available habitats and
15 wildlife’s ability to utilize them.

16 Some wildlife species, such as many amphibians, utilize different habitat types during
17 different parts of the year. For example, many native amphibian species utilize wetlands for
18 only a short time for breeding and rearing but then they rely on forested habitats for much of
19 the rest of the year. Noise impacts should be evaluated for the various cover types utilized by
20 different species.

21 The noise analysis in the DEIS does not reflect the greater sensitivities of wildlife
22 receptors in wetland habitats north of Grandview Road, nor does it address the needs of the
23 heron colony or its seasonal sensitivities. There currently is very little topography or
24 vegetation that could attenuate sounds produced by the proposed project between the project
25 source and the colony. Currently the primary attenuating factor appears to be simple distance.
Although the modeling in the DEIS indicates a greater increase in perceived noise at some
points that are at greater distances than other points. This apparent anomaly is unexplained.

Dr. Wierzba has indicated to me that the modeling reported in the application materials
is based on several questionable assumptions. The distance from the proposed project location
to the heron colony is significant and it may be likely that there would be a low probability of a
significant impact at the colony location. However, it is impossible to make this determination
without accurate information and the Council should demand that the noise modeling be
corrected to reflect the actual conditions in the area.

General foraging activities, on the other hand, could occur fairly close to the proposed
cogeneration plant. Therefore, it is also important to have accurate information about the
potential changes in the noise environment within the critical “staging” and foraging areas
north of Grandview Road. If noise impacts would prevent herons from utilizing the

1 wetland/upland complex north of the project location, then it is possible that food resources
2 could become a critical limiting factor in the continued success of the colony.

3 Construction noise is more problematic as it is variable, loud, and unpredictable. It is
4 common for conditions to be imposed on projects to control construction noise impacts to
5 wildlife. For example, seasonal construction limits to prevent impacts from occurring at the
6 most sensitive times of year for particular wildlife species may be imposed. The DEIS, for
example, incorrectly dismisses potential construction noise impacts by stating that they are
exempt from noise standards.

7 Noise impacts in the DEIS and Application have been inaccurately and inadequately
8 represented. The short statement in the DEIS that wildlife have adapted to the existing refinery
9 noise simply highlights the lack of analysis on the magnitude of change in noise levels and on
10 the impacts to all of the surrounding critical habitat areas. The lack of information about
impacts to the critical "staging" and foraging areas for the Cherry Point heron colony and the
likelihood of significant adverse noise impacts in these areas is a critical oversight.

11 Q: As to the potential adverse impacts from additional lighting which the project will bring
12 to the area, what are your thoughts and conclusions?

13 A: The Council needs to understand that lights on facilities, such as the one proposed in
14 this instance, can have serious impacts to a variety of wildlife. Lights can disorient migrating
15 birds, insects, and amphibians. The Cherry Point area is a significant area for neotropical
16 migrants during the spring and fall migrations. Lights can also disrupt the foraging activities
of nocturnal species.

17 The Application and DEIS are unclear as to the proposed heights and lighting
18 requirements of the various parts of the proposal. These facets of the design need to be
19 clarified before the full impacts of the lighting and needed remedial measures can be
established.

20 However, it does appear that the exhaust stacks for the proposed cogeneration plant
21 will not exceed 150 feet and will not need any navigation warning lights. It should be added as
a condition of the project that no stacks, towers or power poles will be lighted. This should be
listed as a measure to avoid potential impacts.

22 In addition, to avoid impacts to nocturnal wildlife, all outdoor lighting of the proposed
23 cogeneration plant should be shielded to prevent any light or glare from escaping to the north
24 of Grandview Road or up into the sky. This type of shielded lighting is commercially available
and generally costs about the same as other types of outdoor lighting.

1 These simple measures should allow the proposed plant to avoid most impacts of light
2 and glare on surrounding wildlife habitats. These measures should be specifically committed
3 to in the site certification agreement.

4 Q: What are your concerns about the wastewater discharge?

5 A: The Washington Department of Fish and Wildlife and The Nature Conservancy have
6 identified the Cherry Point nearshore habitat as a priority conservation area for biodiversity
7 (WDFW 2003.) This means that in a regional evaluation of available habitats, the Cherry
8 Point area was identified as being very significant. Potential impacts to these habitats must be
9 carefully documented and evaluated. The existing application materials are inadequate in both
10 their documentation and evaluation of potential impacts to the Cherry Point nearshore habitats
11 from wastewater discharges.

12 The DEIS is unclear about potential impacts from the discharge of wastewater
13 generated by the proposed cogeneration plant. Table 3.4-5 shows a projected 1% increase in
14 the temperature of the water being discharged. However, the DEIS does not indicate what the
15 existing discharge temperature is, nor what the projected temperature will be. It is also not
16 clear whether this increase occurs at the treatment plant or at the discharge point.

17 In addition, the DEIS is very unclear about the status of the BP Cherry Point Refinery's
18 current NPDES permit. In section 1.6.1 the DEIS states that the Refinery's existing NPDES
19 permit will require revision to address water quality issues such as impacts of increased salinity
20 and temperature on the herring population, the age and condition of the existing diffuser, and
21 potential cumulative impacts on water quality. The DEIS does not indicate the status of the
22 current permit, the parameters which are currently permitted, nor how the addition of the
23 proposed cogeneration plant wastewater will affect the allowable limits of the current permit.
24 The DEIS appears to assume that the additional wastewater will not be a significant addition to
25 what is currently permitted, however, it does not provide adequate documentation to show that
26 this assumption is correct.

27 The proposed cogeneration plant has recently received an Industrial Wastewater permit
28 from the Washington Department of Ecology. It is my understanding (based on discussions
29 with Ecology staff) that this permit primarily analyzed the addition of the wastewater to the BP
30 Cherry Point Refinery's treatment plant and only incidentally to the discharge into marine
31 waters. A more thorough analysis of impacts to the marine environment would occur in 2004
32 when the Refinery's NPDES discharge permit will need to be renewed.

33 NPDES permits for industrial discharges are renewed every five years. The BP Cherry
34 Point Refinery's permit was last authorized in October 1999. This was about the same time as
35 the listing of several salmonids under the Endangered Species Act and prior to the passage of
36 the Magnuson-Stevenson Fisheries Conservation and Management Act, which protects forage
37 fish, such as herring and surf smelt. In the intervening four years, there has been a tremendous

1 change in our understanding of the impacts of human activities, such as industrial discharges,
2 on salmonids and forage fish.

3 The Application and DEIS appear to simply assume that since there is a valid permit
4 currently in place there will be no impacts to these species. However, given the changes that
5 have occurred in listings and scientific knowledge of impacts, this assumption, without
6 additional documentation, is inadequate. More attention should be paid to the potential
7 impacts to salmonids and forage fish species.

8 If there are impacts to the forage fish species that spawn on eelgrass beds around
9 Cherry Point and on the beaches, then that increases the potential for adverse impacts to a wide
10 range of species including threatened salmonids and herons. These forage fish come in close
11 to shore to spawn just as the heron colony is at a peak need for food to support chicks in nests.
12 Herons eat both adults and subadults. The fish habitats of Cherry Point support fish
13 populations that are then available in the intertidal areas of Birch Bay and other protected
14 shorelines. Changes in the quality of the wastewater discharge may affect eggs or larvae of
15 these fish species, which may then affect the populations of those fish species. Any reduction
16 in available food resources could significantly impact the heron colony's long-term viability.

17 These potential impacts do not appear to have been adequately documented or
18 evaluated in the Industrial Wastewater permit for the proposed cogeneration plant. The
19 potential for impacts must be evaluated and documented in the Final EIS.

20 Q: Please explain your concerns surrounding the proposed stormwater management plan.

21 A: It appears that stormwater runoff from the proposed cogeneration plant site will simply
22 be directed north of Grandview Road and dispersed across the landscape into the CMAs. The
23 mitigation plan implies that the wetland mitigation area will provide water quality treatment
24 for stormwater. It is not appropriate to use a mitigation site for stormwater treatment. At a
25 minimum the proposed project should follow the 2001 Washington State Department of
Ecology stormwater manual. This minimum standard should be clearly specified in the Final
EIS and included in the evaluation of impacts and permit conditions.

There is uncertainty about the amount of impervious surface that will be created, the
volume of stormwater runoff expected, how water fluctuations will be managed, and treatment
levels proposed. For example, the DEIS does state that the stormwater ponds "have been
designed," therefore, this information should be readily available for review and analysis.

The dead storage portions of the proposed stormwater ponds have the potential to
become both bullfrog habitat and amphibian mortality sinks. These ponds should be managed
to prevent both occurrences. To prevent stormwater ponds from becoming mortality sinks for
many species of native amphibians, a low curb or tight mesh fence around the perimeter of the
pond will prevent adults from getting into the pond during the breeding season.

1 Q: Finally, do you agree with the conclusion reached in the DEIS that wildlife habitat will
2 be improved by the project?

3 A: No, the DEIS reaches the incorrect conclusion that because habitats that will be directly
4 impacted are of low quality with non-native vegetation dominating, their conversion to
5 industrial uses will somehow be of a net benefit. This conclusion is erroneous because even
6 non-native vegetation provides some environmental benefits, including sediment retention, and
7 infiltration. Conversion will irrevocably prevent the opportunity to restore these areas.
8 Permanent loss of habitat is not a net benefit under any calculation. Each wildlife species
needs a certain amount of space to survive within a particular area. When the available space
is reduced, a species may no longer be able to use the area, even if other habitat features, such
as food and shelter are present.

9 Q: Have you reviewed the wetland mitigation plan proposed for the project in view of its
10 potential impacts upon area wildlife?

11 A: Yes I have.

12 Q: What, if any, habitat issues does the plan raise in your mind.

13 A: The wetland mitigation plan was developed to propose compensatory mitigation for the
14 loss of over 30 acres of wetland habitat at the proposed cogeneration plant site. This plan
essentially proposes to restore the hydrology to, and control non-native plant species within, a
110 acre "compensatory mitigation area" (CMA 1 and 2). Approximately $\frac{3}{4}$ of this site is
currently classified as wetland and the plan proposes to improve the hydrological functions of
these wetland areas. It is also expected, though not included in the compensatory calculations,
that by filling existing drainage ditches and restoring sheet flow runoff across the site, the
wetland acreage will increase. The plan does not appear to propose extensive site grading or
the creation of ponds.

19 A more heavily engineered plan that included site recontouring would be of greater
concern since there would be greater temporal impacts to the wildlife that currently use this
critical area. Any design that creates ponds with permanent water would also be of concern as
ponds tend to attract and support non-native bull frogs that out compete the native amphibians,
as well as impacting other fish and bird species. However, there are still several areas of
concern for wildlife in the plan as proposed.

23 The wetland mitigation plan does not acknowledge the great blue heron colony's
presence nor does it account for the critical role the CMAs play in the life cycle and long-term
viability of the heron colony. A portion of the area north of Grandview Road in this critical
heron habitat is the subject of a previous wetland mitigation conducted by the BP Cherry Point
Refinery. This previous mitigation was also designed to primarily restore hydrology and

1 control non-native plant species, but somehow has resulted in permanent, open water ponds.
2 The implementation of the proposed wetland mitigation plan will need to be carefully
3 monitored by an independent third party to ensure that previous implementation issues are not
4 repeated with this project. In addition, the Final EIS must include documentation on how the
5 hydrology in the mitigation site will be managed to prevent water from permanently ponding.

6 An additional hydrological concern is that of water level fluctuations. It appears that
7 some of the waterfowl ponds that were created north of Grandview Road in the past have
8 experienced significant water level fluctuations. It is reported that the edges of these ponds
9 have become eroded and steeply sloped. Significant water level fluctuations can prevent native
10 amphibians from successfully reproducing in engineered wetlands. Activities that impact the
11 populations of native amphibians, in turn, will impact the long-term viability of the heron
12 colony by impacting critical food resources. There is no information in the mitigation plan to
13 demonstrate how water level fluctuations will be managed. This is of particular concern since
14 it appears that the water for the wetland enhancement will be stormwater directed off of the
15 proposed site. The hydrology in the mitigation site will need to be managed to prevent water
16 level fluctuations from impacting wildlife resources.

17 The wetland mitigation plan appears to be an incomplete conceptual plan, as it does not
18 include information on timing of implementation. Wildlife habitat issues include both
19 temporal loss of habitat function and seasonal impacts from the proposed work. The
20 mitigation plan describes a program of tilling and disking for two years to control non-native
21 plant species. This would remove large sections of this critical habitat area from the heron
22 colony's available foraging area for at least two seasons. There would also be a time lag
23 between the time of planting and the time that the newly planted areas begin to provide
24 adequate food resources for herons and other wildlife in the area. Disturbances that disrupt a
25 heron colony's ability to successfully nest, which could include a loss of food resources,
appear to cause colony abandonment, if the disturbance continues for two or more years (pers.
obs.). That the wetland mitigation plan does not even acknowledge the potential for these
impacts is of serious concern.

The mitigation plan also does not include any information on the seasonality of the
proposed work. Tilling and disking activities could seriously impact a wide variety of ground
nesting birds that likely currently use the CMA, if it is done during the nesting season. The
plan does not provide information on the proposed frequency or timing of this work, or on the
species that might be impacted in these areas. This impact must be further evaluated in the
Final EIS.

The wetland mitigation plan should also include a proposal for the development of
alternative colony locations. This might include the creation of increased deciduous forest
cover. The most appropriate location would likely be adjacent to the forested Terrell Creek
corridor. The wetland mitigation plan will be impacting some of the most critical habitat for

1 the heron colony, but it does not include consideration of the potential impacts to the colony
2 nor does it propose measures to improve this critical area for the herons.

3 The wetland mitigation plan includes a proposal for increasing large woody debris in
4 the CMA. However, the source of these logs will be trees that are removed from the proposed
5 cogeneration plant site, primarily poplar and Douglas fir. These trees are described as ranging
6 from 7 to 10 inches in diameter, at the large end of the log. Logs of these sizes will only
7 persist in the environment for a few years at best and are unlikely to provide benefits much
8 beyond the required monitoring period. While large woody debris, both standing (snags) and
9 horizontal logs, can be of great benefit to wildlife, the woody debris, as proposed, is
10 inadequate.

11 The plan proposes to set some of these logs up as snags, only two of which will be
12 greater than 12 inches in diameter. Snags of this diameter will not persist in the environment
13 for any significant length of time and, due to the small diameters, their value to wildlife is quite
14 limited. The mitigation plan further proposes to add 10-foot long crossbeams to some of these
15 snags, which are no more than 30 feet tall. It is very unclear why the crossbeams are designed
16 to be so long. The DEIS also states that these crossbeams are intended to provide perches for
17 great blue herons which would use them to hunt mice and voles. Herons do not hunt from
18 elevated perches.

19 The mitigation plan goes on to propose the placement of small woody twigs in wetland
20 areas to provide amphibian egg deposition sites. This proposal is disturbing for several
21 reasons. First, it assumes that the site will be engineered so that a determination of where
22 water will pond in the spring can be made. Secondly, since the small twigs would need to be
23 anchored to prevent them from rising and falling with water level fluctuations, it assumes a
24 level of ground disturbance that may not be justified. Finally, small twigs in a seasonally
25 inundated wetland environment will not persist much beyond one season. The plan's reliance
on an "engineered" approach to an issue that is much better addressed through adequate
vegetation and hydrology management is of great concern.

The mitigation plan also proposes to construct a few "brush shelters" for additional
wildlife cover. However, as with the other constructed woody features, the sizes of the
materials are too small to presume that they will persist in the environment for much more than
the required monitoring period. These brush shelters are also designed to support the same
herbivores that may jeopardize plantings that the snag/hunting perch poles are designed to
protect. These inconsistencies in goals and management approaches need to be addressed
before the proposal is finalized.

The mitigation plan also claims credit for providing thermal cover benefits to wildlife.
However, the plant species lists provided show more deciduous species to be used than
coniferous species. There is no information provided about the ratio of evergreen to deciduous

1 plants. Deciduous plants provide little thermal cover in the winter when thermal cover is most
2 limiting in this area. Claims of thermal benefits for wildlife are unsupported in the DEIS.

3 Finally, the mitigation plan contained in the DEIS, calculates that the plan will result in
4 greater functionality of both the restoration areas and the CMA for wildlife. This result is
5 based largely on an anticipated increase in plant diversity. However, that calculation probably
6 overstates the potential benefits because it does not account for the potential noise and light
7 impacts that could prevent wildlife from using these areas. It also does not account for the
8 temporal loss of functions. It is important to include both diurnal and nocturnal wildlife use of
9 the mitigation area and to recognize that some species, such as herons, use the area over the
10 entire 24-hour cycle. This is lacking in the current analysis.

11 Q: Does the Application and DEIS give adequate treatment to species of local importance?

12 A: The Application and the DEIS include lists of species observed and expected within the
13 proposed project site and the mitigation areas, including CMAs 1 and 2. While these lists are
14 correctly identified as not being exhaustive lists of every species that might occur in the project
15 area, they are represented as listing the most common species likely to be found there.
16 However, these lists are curiously incomplete in some rather startling ways. The DEIS
17 analysis based on these lists omits consideration of significant wildlife species, and, therefore,
18 the DEIS is inadequate in its documentation and evaluation of impacts.

19 A number of well-documented species occurrences are omitted. For example, while the
20 great blue heron nesting colony is noted in passing, the critical foraging and staging habitats
21 present within the project area are not mentioned. At a minimum, existing sources of
22 information on wildlife use, such as the current Terrell Creek Wildlife and Habitat Baseline
23 Report prepared for the Whatcom County Council of Governments, dated November 2002,
24 should have been referenced for useful information.

25 As authorized by the Washington State Growth Management Act, Whatcom County
has identified Species of Local Importance (WCC 16.16.720 and Appendix C). Significant
species that occur within the project area and which appear to be omitted from the DEIS
analysis include: bald eagle (threatened); pileated woodpecker (candidate); peregrine falcon
(protected); and great blue heron (monitor). In addition, the area is used extensively by
neotropical migrants, a group of passerine species that are indicators of environmental health in
both temperate and tropical habitats. While not all of these species nest within the project area,
they do nest within the area that is shown as being impacted by noise and they all forage within
the project area. Changes to the habitats within the project area, including the CMAs, may
directly affect these species. Overall effects might be positive, assuming that noise impacts are
minimized, but the impacts must be evaluated in the DEIS. At a minimum the Application and
the Final EIS need to evaluate potential impacts to Species of Local Importance as identified
by Whatcom County.

1 There are also a number of significant fish species known to use the Terrell Creek
2 corridor including the listed Puget Sound chinook, and candidate sea run cutthroat trout and
3 Puget Sound coho. Both the cutthroat trout and coho occur in reaches of Terrell Creek
4 between Kickerville and Jackson Roads (Eissinger 2002). As there have been unexplained fish
5 kills in the Terrell Creek system in the past (Eissinger 2002), it would be prudent for the Final
6 EIS to include these species in the evaluation of impacts. In addition, coho are among the
7 species that comprise Essential Fish Habitat under the Magnuson-Stevenson Fishery
8 Conservation and Management Act. The projects' compliance with Federal laws is suspect.

9 Q: Are the cumulative impacts from the project upon area wildlife appropriately presented
10 and considered in the application materials?

11 A: In my opinion no. The area between Kickerville and Jackson Roads has already been
12 the subject of at least two mitigation actions in recent years. Additional mitigation for other
13 projects is currently proposed for this area north of Grandview Road. While it is to be hoped
14 that each of these mitigation actions will complement the other, efforts to coordinate these
15 activities are unclear since the DEIS does not adequately describe these actions in the
16 cumulative impacts section. As additional critical habitats are included in various mitigation
17 proposals, the potential cumulative impacts to herons and other wildlife, particularly temporal
18 impacts resulting from changes in vegetation and prey species, must be documented and
19 evaluated. The cumulative impacts section of the Application and DEIS is inadequate in that it
20 does not include documentation and evaluation of these cumulative habitat alterations
21 proposed in the project area. These impacts are important for the Council to consider in
22 reaching its siting decision and the appropriate design and operational conditions for a project
23 of this nature.

24 Q: What specific recommendations do you believe should be considered by the Council in
25 this matter?

26 A: There are a number of subject areas where the DEIS and Application do not supply
27 sufficient or accurate information, thereby preventing an full analysis of impacts. Likely
28 adverse impacts include impacts to water quality and quantity; to sensitive fish and wildlife
29 including the significant heron colony, threatened Puget Sound Chinook, and Essential Fish
30 Habitat; critical wetland and riparian habitats; and impacts from changes in noise, and light. In
31 addition the project area is defined too narrowly. The impact area analyzed must include the
32 mitigation areas as well as the full area where impacts such as noise are likely to occur. By the
33 same token, the outfall pipe that carries wastewater generated by the project to the marine
34 environment must extend the analysis to these areas as well.

35 SEPA and NEPA require that mitigation for impacts follow a specific sequence
starting with avoidance of the impact, then minimization, and finally, if there are no other
alternatives, compensatory mitigation. Many impacts have not been correctly identified in the

1 DEIS so proper mitigation sequencing is not possible. For other impacts, the mitigation
2 sequencing has not been properly documented.

3 Some of the identified potential impacts would be relatively easy to mitigate for and
4 mitigation should be included in the design. A few of these mitigation measures that should be
5 included in the Final EIS are as follows:

- 6 • All outdoor lighting should be shielded to prevent any light from extending north of
7 Grandview Road or up into the sky.
- 8 • All stacks, cooling towers, and transmission line towers should be kept to minimum
9 heights and must not include lights.
- 10 • Transmission towers must not include any guy wires.
- 11 • Noise production must be modeled accurately and managed more aggressively to meet
12 the standards suggested by Dr. Wierzba (potential increases limited to 3 dB in A-
13 weighted levels and 9 dB in C-weighted levels at sensitive receptor sites – e.g. heron
14 foraging, staging and nesting areas.)
- 15 • Plant “start-up” should be scheduled for September or October to allow wildlife the
16 maximum amount of time to adjust to changes in noise levels prior to the start of
17 sensitive activity periods (e.g. breeding season staging in February and March for great
18 blue herons.)
- 19 • If noise levels are likely to fluctuate during plant operation or maintenance, minimize
20 such starts and stops during sensitive activity periods for wildlife.
- 21 • At a minimum, manage stormwater to meet the Washington State Department of
22 Ecology 2001 stormwater manual.
- 23 • Install curbs or low, tight-mesh fencing around stormwater ponds to prevent amphibian
24 reproductive mortality.
- 25 • Plant vegetative buffers (conifers) to help attenuate noise impacts and provide habitat
and water quality benefits (note: there may still be significant temporal impacts.)
- All landscaping and buffer plantings between the facility and Grandview Road should
consist entirely of native plant species.
- Woody debris and snags installed in the wetland restoration and mitigation areas should
include materials of a size and composition that is likely to persist in the environment
and provide habitat benefits for many years.

21 While monitoring is not mitigation, it may be part of a contingency plan to ensure
22 performance of the mitigation plan. The mitigation plan should include contingency measures
23 to deal with unforeseen issues or mitigation failures.

23 In sum, “Build it and they will come” doesn’t always work with wildlife. There are
24 many pieces to the habitat puzzle that we do not fully understand and when we try to create
25 habitats (or restore areas), they often remain unoccupied. While the habitats in the project area
are currently degraded by non-native invasive plant species and past alterations, they are still

1 currently serving critical habitat functions. It is in the best interests of the public and the
2 applicant to be conservative in evaluating potential impacts to the long-term viability of these
3 habitat areas.

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END OF TESTIMONY

I declare under penalty of perjury that the above testimony is true and correct to the best of my knowledge.

Executed at _____, Washington, on this ____ day of November, 2003.

By: _____
Kate Stenberg, Ph.D.